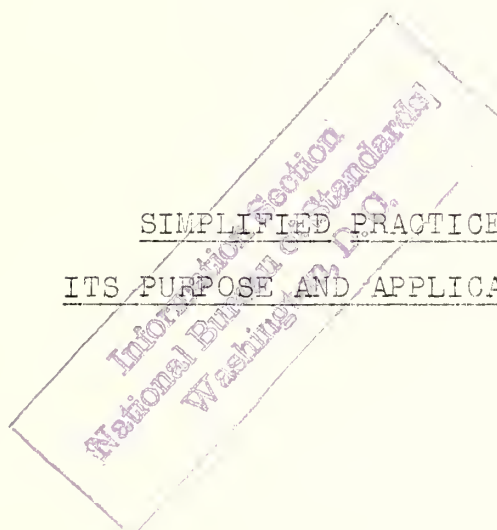


U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
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SIMPLIFIED PRACTICE
ITS PURPOSE AND APPLICATION



SIMPLIFIED PRACTICE, ITS PURPOSE AND APPLICATION

Short Description

Statistics are issued from time to time by economists that estimate the costs of avoidable wastes in production and distribution of commodities. While there may exist differences of opinion as to their magnitude, there is a consensus regarding opportunities to reduce those costs. One of those opportunities is found in applied simplified practice.

SIMPLIFIED PRACTICE is a method of eliminating avoidable waste in industry.

A SIMPLIFIED PRACTICE RECOMMENDATION may be defined as a list of sizes, varieties, types, or grades of products which has been approved for regular stock purposes, after superfluous variety has been eliminated; or it may be defined as a simplified method.

THE PLACE OF ORIGIN OF A SIMPLIFIED PRACTICE RECOMMENDATION is within the affected industry itself. Here the term "industry" is used in its broadest sense, and in any particular instance may be construed to mean a manufacturer group, a distributor group, or a user group, that is, consumers.

The Division of Simplified Practice, of the National Bureau of Standards, United States Department of Commerce, receives a suggested recommendation from one of those three groups and refers it to the remaining groups for their consideration and signed acceptance, on a voluntary basis.

This result is attained through the operation of the approved procedure of the National Bureau of Standards, which procedure includes promulgation; publication; and revision when necessary, in cooperation with a representative Standing Committee composed not alone of manufacturers of the specific commodities, but also distributors, and users of those commodities.

This procedure is in harmony with the recognized functions of the Bureau, and has been examined and approved in its legal aspects.

The term, "CONSUMER," as used in this Letter Circular, is defined as "one who, or that which, consumes," or "one who uses goods."

In dealing with the subjects of commodity simplification, and commodity standardization, the National Bureau of Standards considers as "consumers" those who buy the commodities. For example, a housewife in purchasing a bed blanket, in a so-called "over-the-counter" transaction, becomes the ultimate consumer of that commodity. She is also a member of the public.

"Consumer representatives" are limited to those qualified to represent buyers, whether organized or unorganized, of specific commodities. The buyers may be those who purchase the designated materials for purposes of re-manufacture, or resale, or that may be the so-called "ultimate consumers" in certain cases. To illustrate, the automobile industry, as one of the representative consumers of grinding wheels, spends millions of dollars annually on that particular tool. The cost of grinding wheels is a burden of charge on the individual automobile manufacturer which he can recover in only one way, - by including that cost in the selling price of the finished automobile. The car owner, who is the ultimate consumer of the car and who is a member of the public, foots the bill for the grinding wheels.

By way of summarizing this short description, it may be said that the Division of Simplified Practice serves as a clearing house or centralizing agency through which manufacturers, distributors, and consumers cooperate in developing voluntary Simplified Practice Recommendations that are National in their application.

Full Description

In the following pages will be found a more detailed consideration of the principle of simplified practice, and a description of the plan that any group in any industry may follow in inaugurating the development of a Simplified Practice Recommendation.

SIMPLIFICATION, SIMPLIFIED PRACTICE AND STANDARDIZATION

Simplification has been defined in general terms as that policy of management which has as its object the conduct of all activities and the performance of all functions of an enterprise in the least elaborate manner consistent with any given purpose. One essential application of this policy consists in reducing excessive variety of types and sizes of products purchased or sold. As used here, "variety" applies to a specific commodity, without implication that it is desired to discriminate between different commodities.

Simplified practice is a method of eliminating superfluous variety through the voluntary action of an industrial or commercial group. It represents the concerted action of one or more industries in applying simplification. Specifically, when one manufacturer reduces the number of types and sizes in which he makes his product, that is simplification. The consumer applies the same principle when he limits his purchasing to stock items. When a group of manufacturers, distributors, and users cooperate to concentrate their respective operations on a definite and relatively small list of variations, simplification becomes simplified practice.

The term simplification, when used in the sense of eliminating unnecessary variety, is sometimes confused with standardization, but the two activities are essentially different. Standardization is primarily technical, and creative; its function is to determine and establish in use the best design, quality; method or process for performing a desired function. Simplification, on the other hand, is commercial and selective; its function is to determine which sizes or items of a product are most important, and to concentrate production on them wherever possible. Simplification may be applied to articles already standardized as to design or size, or it may be applied as a step preliminary to standardization, thereby clearing the way and reducing the number of items to be standardized. In the great majority of cases the formulation of a simplified practice program by an industry, and its subsequent consideration by all interests, in general conference assembled, or by letter-ballot, are attended by few difficulties of a technical character.

Experience has shown that otherwise insuperable obstacles in the way of securing the desired support for such a program after its formulation may be avoided when it is developed under the auspices of a disinterested agency. In order to safeguard the interests of all concerned, this agency must have prestige, accumulated experience, and the permanence necessary to insure such regular revisions as will keep the simplified list in accord with current demand and improvement in the industry's

methods. The Department of Commerce, through the Division of Simplified Practice of the National Bureau of Standards, provides such an agency.

When the Division was first organized, certain fundamental principles were adopted as a basis for its work. One of the most important of these is that simplified practice must always be a voluntary activity. The Division does not initiate simplification projects, nor attempt to dictate or even participate in the formulation of any Simplified Practice Recommendation. Its function is purely cooperative, as a neutral, disinterested coordinating and centralizing agency to assist in developing the best thought and practice in an industry. There has occurred no deviation from these fundamental principles.

Another important principle is that simplified practice results in maximum benefit only when it represents a true consensus of every interest concerned with the particular product or commodity to which it applies. In this connection the reader's attention is directed to the last page of this Letter Circular where are listed some of the specific benefits which should follow the adoption of a Simplified Practice Recommendation.

Simplified Practice Recommendations may be initiated by any industry-group, that is, manufacturers, distributors, or users. Several of the most successful recommendations were initiated by distributor- and user-groups. No matter which group commences the project, however, it must receive the support of all other groups, which must also have an active part in its formulation.

A Simplified Practice Recommendation, like a standard, a manufacturing process, a sales method, or any other form of industrial or commercial policy, must be flexible. It must be capable of modification to meet new development, invention, or any other factors which cause a change in conditions. This fact has been recognized by the Division from the very beginning of its work, and has been adequately provided for in the procedure used to develop simplified practice projects.

DEVELOPING A SIMPLIFIED PRACTICE RECOMMENDATION

The success of a simplified practice project depends largely upon the completeness and accuracy of the data collected through a survey of the specific industry. Studies of sales figures for different commodity lines frequently show that about 80 percent of the business is done in approximately 20 percent of the varieties in which the product is offered.

The remaining 80 percent of the variety which brings in only 1/5 of the year's business is often a drag on industry, causing excessive inventories, higher carrying costs, slow turnover, and heavy obsolescence, with consequent loss to all concerned. As a first step in developing a simplified practice recommendation, a representative committee of the industry should secure the following information:

1. A complete list of sizes, varieties, types, etc., of the article made during each year of the period to be covered by the survey.
2. The volume of each item under (1) produced annually.
3. The relative importance of the items under (1) other than as shown by production (some items of small production may be very important because of special applications).
4. The probable future trend in respect to the needs of users of the article under review.
5. The items which, in the opinion of the correspondent answering, can be eliminated with (a) certain advantage, (b) probable advantage, and (c) possible advantage.

This information is consolidated into a statement to be considered by a general conference at which all interested groups are adequately represented. The committee chairman prepares lists of representative producers, distributors, and consumers who, in his judgment, should be invited to the general conference. When necessary, these lists may be amplified by the Division so as to insure balanced representation.

Based on the facts shown in the committee's survey report, the general conference adopts a simplified practice recommendation, usually in the form of a list of sizes or types of the product which appears adequate to meet all normal demands. The Division of Simplified Practice then prepares a complete report of the action taken by the conference, which is submitted to those concerned for final acceptance of the recommendation.

STANDING COMMITTEE

At the close of its session, the general conference authorizes a permanent standing committee, usually composed of not more than three representatives from each branch of the industry; for example, producers, distributors, and consumers.

The function of this committee is to provide an avenue through which the industry may be promptly consulted, and may in turn make known its views.

The members should be prepared to devote such time and to accept such assignments and responsibilities as may be necessary to the success of the program, including attendance at such occasional meetings as may be required. The chairman, in accepting his appointment, places his services and those of his committee at the disposal of the industry, through the Division of Simplified Practice; (a) for prompt and careful consideration of all questions which may arise when the program is put into actual use, (b) for the application of such measures as appear to be in the best interests of all concerned.

A committee that quickly and accurately reflects the wishes and opinions of the industry and, through its chairman, promptly disposes of matters referred to it, is a practical insurance against any serious difficulty in the initial application and maintenance of simplified practice.

The standing committee must recognize that the Department of Commerce, in its capacity as a coordinating agency alone, has no authority to compel acceptors to adhere strictly to the letter of a recommendation. An important function of the standing committee is to emphasize to acceptors the fact that it is definitely to their interest to subject the recommendation to a thorough practical test. Only in this way can the soundness of the program adopted by the general conference be demonstrated. Service on Standing Committees is not arduous, and yet such service is very important.

RE-AFFIRMATION AND REVISION

Continued success of a simplified practice recommendation is dependent upon the sustained interest of all concerned, and this in turn rests upon the maintained up-to-dateness of the recommendation. The latter requires a resurvey from time to time to measure the degree of adherence. It also requires the practical determination, from available facts, (by the Standing Committee, or by a conference of the industry, when that method seems better), as to whether that particular recommendation should be revised, or whether it should be reaffirmed in its existing form.

The initial action on the part of any industry in adopting a simplified list of sizes and varieties of a given commodity is based on current conditions. The demand for particular types of sizes of a product may be directed toward entirely different items as time passes. Industry must have available

a method whereby it can effect the changes necessary to keep the recommendation abreast of current practice.

IDENTIFICATION OF SIMPLIFIED LINES

An essential corollary to the application of a simplified practice recommendation is the adoption of adequate means of keeping the project constantly before the consumer through identification of the simplified list of items in handbooks, catalogs, advertising, etc. The Division of Simplified Practice has been able to assist manufacturers and distributors in carrying out the expressed wishes of the consumer in this regard. In several industries all of the accepting manufacturers are following the practice of identifying the simplified lists of sizes and varieties of their products.

ADHERENCE

Obviously, the value of any Simplified Practice Recommendation is measured by the degree or extent of its actual application or use. Moreover, such recommendations, however meritorious, do not "sell" themselves; their usefulness must be demonstrated.

The most rapid and widespread adoption of a simplified list of sizes and varieties is not obtained by waiting for its superiority over former practice to become evident through "trial-and-error." Instead, it is essential in the interest of minimizing avoidable waste that the advantages inherent in the program be thoroughly and persistently emphasized and demonstrated. Only in this way can its value be brought home effectively. Predictions not based on practical demonstration usually fail to convince the prospective user of the benefits he should expect.

A number of Simplified Practice Recommendations have already secured an adherence of more than 90 percent, by volume, of annual output. If each producer, distributor, and consumer will do his part toward discarding nonessentials and specify simplified lines when buying, adherence will approach 100 percent. Obviously, the higher the adherence to each specific simplification, the greater will be the benefits to all concerned.

The paving brick industry was the first to use the services of the Division of Simplified Practice. The procedure followed in developing simplified practice in that industry will serve to illustrate the methods and principles already described. In this case, the project was initiated by the manufacturers of the product, through their national association. In spite of the

fact that the volume of business had not fallen off to any great extent, representative manufacturers believed that excessive variety was keeping costs at unduly high levels. Each manufacturer submitted figures showing the number of brick of each size and type produced during a period of several years, also the current average demand for each.

These figures were tabulated in the order of percentage of sales of each size to total sales. The tabulation disclosed that more than 80 percent of total sales was concentrated on less than 20 percent of existing varieties or sizes. Of the 66 sizes of vitrified paving brick regularly produced, 11 accounted for more than 80 percent of total sales. The remaining sales were thinly and unprofitably distributed over the other 55 sizes. The manufacturers therefore proposed to classify these 11 sizes as "recognized varieties" and to eliminate as far as possible all others as stocked sizes.

A general conference was held at the Department of Commerce and was attended by manufacturers, distributors, Federal, State and local highway engineers. The proposals of the manufacturers, backed by the conclusive evidence shown in the tabulation, were presented, and the conference voted unanimously to approve them as a simplified practice recommendation. A standing committee of the industry was then appointed to sponsor the recommendation. The members of this committee included representatives of manufacturers, dealers, engineers, and other groups concerned.

A detailed report of the conference was prepared by the Division of Simplified practice and mailed to interested organizations, companies, and individuals. Included with the report was an "acceptance blank" by which formal approval could be registered. This blank stated in effect that the signer approved the action taken by the general conference and accepted the recommended sizes as his standard of practice for production, distribution, or use, as the case might be. When sufficient signed acceptances had been received to indicate initial success of the program, the "simplified list" of sizes, together with a brief history of the project, was published in booklet form by the Department of Commerce, National Bureau of Standards, and designated "Simplified Practice Recommendation R1."

Since that original general conference it has become the custom of the standing committee to meet annually for the purpose of considering data showing shipments of each size and type of vitrified paving brick, through which the degree of adherence to the recommendation may be measured. At the first revision conference, the simplified list was reduced to 7 sizes. Subsequent conferences resulted in a net reduction to

4 sizes, which represented 79.3 percent of current total sales. This list of 4 sizes has twice been reaffirmed.

RESULTS AND BENEFITS OF SIMPLIFIED PRACTICE

Since the paving brick recommendation was developed, the Division of Simplified Practice has cooperated with many different industries in developing and making effective Simplified Practice Recommendations which have been accepted by thousands of associations, and firms. This support is entirely voluntary. In each case the procedure followed was basically the same as that which has been described. The recommendations cover a wide range of commodities, including construction materials, many metal products, tools, ceramic products, textiles, paper and card board products, mechanical products, materials handling equipment, various types of containers, and forms such as invoices and warehouse receipts.

The striking growth and expansion of simplified practice afford ample evidence that executives in every kind of business realize the necessity of proper balance between production, design, and sales, and realize also that simplification, intelligently applied, benefits all three. In attempting to measure in dollars and cents the benefits gained through simplified practice, it is obviously impossible to make even a general estimate covering all savings.

To illustrate the achievements of industry in reducing unnecessary variety, and, by example, to show the broad applicability of the procedure which has made them possible, there has been prepared Letter Circular LC-504, presenting a comparison of the number of varieties of certain commodities produced under simplified practice with the number produced before simplified practice was applied.

The manufacturer benefits from simplified practice through simplification of purchases and through more comprehensive planning and more effective investment in inventories. Business failures resulting from frozen inventories of raw and finished stock are minimized. Many production problems can be more effectively handled, such as those brought about by the necessity of frequently readjusting machinery for the production of slightly different items. Employee training is made easier and this in turn is reflected in quality improvement. Simplified practice tends to smooth out the irregularities of seasonal operation by making it possible to manufacture for stock in dull seasons with less danger of obsolescence. Reduction of inventories, both of raw materials and finished stock, releases invested capital, reduces interest charges, makes handling easier, and releases storeroom space for other purposes. The

movement of goods is facilitated through concentration of sales effort in fewer varieties. As the manufacturer is thus better enabled to meet competition, the probability of his running his plant continuously is increased, and the security of the employee's job is also increased. Steady work means steady earnings and sustained purchasing power. In this way simplification operates to strengthen business in general.

Wholesale and retail distributors are also benefited by simplification. Inventories are not tied up by slow-moving varieties of stock. Since the simplified line is selected on the basis of known demand, faster turnover can be secured. The distributor can give better service, as there are fewer chances of his being "just out" of the item sought.

The ultimate consumer of "end products" pays all the bills in the long run, hence is directly concerned in any program which results in saving money in the manufacture or distribution of the products he buys at retail. His interest in simplified practice is therefore direct, though too infrequently expressed or even realized. The benefits he gains from simplified practice accrue to him primarily through industrial competition. If a manufacturer reduces the total cost of his product, he may be able to retain a portion of the savings, but sooner or later he will take advantage of reduced costs to seek more business, through reduction in price, improvement in quality, or better service. The distributor does likewise, and the consumer gets the final benefit in price, quality, service, or otherwise.

In considering benefits to the consumer, it should be emphasized that the ultimate consumer, who buys end products at retail for his individual use, is not the only one to be classified as a "user" of manufactured products. In each successive step in production and distribution, from raw material to finished article, the finished product of one industry may become the raw material for the next. Only a very few of our largest industries, notably in the automotive and fuel groups, control the entire process of production and distribution of any one product. Even those few buy a certain proportion of materials and parts, and practically all equipment and tools, from other manufacturers. The consequence is that with negligible exceptions every industry and individual is a "consumer" of some products made by others. Even though a manufacturer, large or small, may turn out a highly specialized article in which he considers variety as essential, he still has to buy and use products in which excessive variety will cause waste and unnecessary expense to him.

CAUSES OF EXCESSIVE VARIETY

In view of the important benefits gained through simplification, as now thoroughly proved by experience, the question is sometimes raised as to why it is not universally applied. The effect of individual taste on the design of goods for personal use is obvious. In the field of non-style goods, or any goods in which style and taste are not controlling factors, there are other influences which tend toward increasing variety. These influences, while always present, are accentuated during any period of depression, accompanied by a buyers' market. It is during such periods that variety is likely to increase most rapidly.

On the one hand is the factor of production cost, pulling strongly and at all times toward simplification. Opposed to it are several factors pulling in the opposite direction. Invention and new development constitute one factor, but its influence and strength are intermittent and variable. Another factor, always present to some extent and greatly strengthened during a buyers' market, has been called "the pull" of the sales department. The job of that department is to sell goods. Usually the income of its staff members is at least partly dependent on volume of sales. Consciously or otherwise, a good salesman is inclined to strain a point to give the customer what he says he wants, even though it happens to be something outside of the regular line, i.e. a "special."

A third factor which often has a strong influence toward variety is the desire of technical men to create something new, and to impress their individuality upon the product. This desire is not only natural, but most valuable, for without it there would be no development or improvement. Something new, something different, may mean something better. On the other hand, it may be just different. Some one must decide, basing his decision not on technical excellence alone, but on all factors, with economic results as his final measuring stick.

Production, design, and sales are interdependent, and no one of them can be allowed undue influence. In a going concern, the three factors are in "dynamic balance." If during a period of stress, the head of a business yields to the pull of the sales department, perhaps backed by that of the technical staff and increases the variety of product on the theory that it will help to keep the factory going, his competitors are likely to follow suit. Before long, a new "number" has been added to the line throughout an entire industry. As a temporary business expedient, such action may be justified in particular cases. The trouble usually is, however, that such an increase in variety is likely to be permanent, and eventually result in waste and expense all the way to the consumer.

Something of this sort has happened at one time or another in practically every industry of any size or permanence. The establishment of simplified practice and its recognition as an essential function of management have gone far to prevent or correct such difficulties. In cases where a simplified practice recommendation has been put into effect in the industry, the periodic review by the standing committee has a strong influence in checking undue increase in variety, or in reducing variety at least to previous levels as soon as possible.

The beneficial effect of simplified practice in fields other than financial and economic has occasionally been questioned by individuals who see in simplification and standardization a threat of the destruction of individuality. This criticism presupposes that variety for its own sake is desirable in every kind of article and commodity. The fallacy of such a supposition is obvious to anyone who has even a general acquaintance with the products and methods of industry. It is doubtful if anyone would seriously contend that 176 different kinds of lamp bases would be preferable to one standard, or that every typewriter should have a different keyboard arrangement.

The underlying principle may be expressed briefly by saying that the value of simplification and standardization increases as the factors of style, taste, individuality, or artistic expression become less important. None wants drab uniformity in clothes or furniture or house decoration; on the other hand, no intelligent person would consider that variety for its own sake was desirable in steel bars or metal lath or paving bricks. Simplification, like any other sound and useful activity, is fundamentally based on common sense.

It should be recognized that simplified practice is most effective when applied to commodities or products in which style and individual taste are minor factors. Newer industries usually find it advisable to delay the establishment of a Simplified Practice Recommendation until inventive genius and practical experimentation have had full opportunity to establish current best practice, and demand has given a definite indication of the users' preference.

Those commodities in which certain qualities are the controlling elements or which must meet the requirements of special technical or engineering purposes sometimes lend themselves more readily to standardization than to simplification alone. Even in such cases, however, simplified practice will frequently clear the way for a standardization program. When applied at all, it should be preliminary to standardization, since the elimination of superfluous types

and sizes will permit technical groups to concentrate their standardizing efforts on essential items.

FUTURE APPLICATIONS OF SIMPLIFIED PRACTICE

Considering the extent to which simplification has become a vital factor in industry and commerce, the question of its future possibilities is pertinent at this time. Broadly speaking the surface has barely been scratched. Not only are there numberless manufactured commodities to which simplification has never been effectively applied, but new fields of application are constantly developing. Leaving out of consideration all efforts of individual firms or small groups to simplify their products, opportunities for simplified practice on a national scale, throughout whole industries, are still numerous. A great majority of projects carried through under the auspices of the Division of Simplified Practice have applied to reductions in variety of dimensions of manufactured articles. A few have covered simplification of printed forms. At least one has covered sizes and classification of a natural product. Dimensional simplification will unquestionably be extended to a great many more industrial products. With it will come a wider application of the same principle of reduced variety, in types, capacities, and other characteristics, of hundreds of commodities. Simplification will be studied and applied in advance, when new products are being developed, thus avoiding waste in production and marketing instead of waiting until such waste has become a burden.

A considerable proportion of future simplified practice recommendations will undoubtedly cover cases such as those just described. It seems highly probable, however, that there will be a strong trend toward further simplification of every kind of commercial form. A start has been made, on bank checks, invoices, and warehouse forms, but these represent only a small fraction of the possibilities. Another probable trend will be toward simplification of methods and processes of performing various functions and operations, both mechanical and clerical. Comparatively nothing has been done on a national scale in this field, except in the case of the very largest basic industries, and then mostly by railroads and public utilities. Individual firms have in most cases established "standard" methods, some having attained a high degree of simplification within their own organizations. A few trade associations have done successful work in connection with establishing uniform cost and accounting methods. There still is, however, an almost unexplored field for further cooperative effort along these lines.

Perhaps the most important trend, measured by possible savings, lies in the general field of distribution. For more than 30 years the majority of our American engineering and inventive genius has been devoted largely to problems of production. There is today an enormous quantity of information available, in books, magazines, and data of all sorts, covering what may be called the "science of production." No comparable information has been compiled on the subject of distribution, and practically none on that of physical distribution, with the single exception of transportation. This is partially due to the fact that physical distribution of most end products, commodities sold to the ultimate consumer, is accomplished through more than one agency. With few exceptions, these agencies are wholly uncoordinated. The most outstanding instances of lack of coordination may perhaps be found in the distribution of food products, but there are many other commodities in which conditions are just as wasteful.

Even though each successive link in the chain from raw material to consumer may be operating efficiently if considered by itself, loss, waste, and inefficiency may come in at each point where one link joins the next. Opportunities for cooperation, simplification, and coordination in this field are manifold. Certain specific opportunities are obvious, as, for example, in the design and use of containers. A start has been made in this field, but years of concentrated effort will not exhaust the possibilities. Simplified practice recommendations are already in effect covering such items as glass bottles and jars for a few commodities, certain types of barrels and drums, packaging of bolts and other small articles, ice cream containers, and set-up and folding boxes used for dry goods. "Primary" containers such as these, in which the actual products are first packed, are made in countless types, materials and designs. In some instances, container design is highly individual, for advertising purposes. In the vast majority of cases, however, individuality is largely confined to labels, and the opportunity for reducing variety in shape and dimensions is limitless.

In "secondary" containers, meaning those in which a quantity of primary containers are packed, the field is virtually untouched. One recommendation is in effect covering paperboard secondary containers for canned fruits and vegetables and another for wooden boxes, for the same purpose. Individual firms have adopted their own standards for carrying thousands of products. No general effort has been made, however, to simplify similar containers used by different industries, and in relatively few instances do we find simplification throughout any one industry. Many products require a third container for shipment, carrying a certain number of secondary containers. The same situation as regards unnecessary variety applies with

equal force to shipping containers, and in addition to the usual advantages of simplification, a further advantage can be gained through reduction in variety of packing and stowing methods for shipment in freight cars, trucks, and other transportation equipment. Simplification of both kinds of containers would not only reduce their cost, but would result in substantial savings in cost of handling, storing, loading, and unloading.

Container simplification is closely related to simplification of machines and equipment for handling materials and goods. Opportunities for such simplification cover almost every kind of machine or device used for such purposes. The only Simplified Practice Recommendation in this field so far covers dimensions of skid platforms. Other projects in this field are under consideration, but they represent only a fraction of the possibilities. Both containers and material handling equipment must necessarily be studied in their relation to transportation equipment, rail, water, highway, and possibly air. The standard railway box car has been the only unit nationally recognized as standard, though the railways are making a continuous and successful effort to reduce variety in car dimensions and numerous other items. While 100 percent coordination may be impracticable, the opportunity for accomplishing a high degree of coordination is tremendous. Simplification will be the largest factor in accomplishing it, and perhaps the most important point to be emphasized is that each successive step in this far reaching program will pay for itself many times over.

Experience has demonstrated the benefits of simplified practice in hundreds of industries where it has been intelligently applied and maintained. Simplified practice has become fully recognized as an essential function of modern management, and there is no longer any question as to its economic value. Such benefits as conservation of natural resources, and improvement in quality and service, cannot be accurately measured in terms of dollars and cents. The work of the Division of Simplified Practice has had a profound influence on all industry, increasing as its results became apparent. That influence has by no means been local, or even national, in scope. It has extended to foreign countries in three continents and in at least one instance, in Australia, it has been evidenced by direct adoption of the procedure used here. In this country, the principles and methods used to develop simplified practice have found their way into the operations of Federal, State and local governments, hundreds of industrial and commercial groups and organizations, and into the literature of business economics, management, engineering, and education. A number of universities have already incorporated the subject of simplified practice in their courses on economics, business management, and engineering.

CONCLUSION

In conclusion, it may be helpful to summarize some of the specific benefits which should follow the adoption of simplified practice. These are:

TO THE PRODUCER AND MANUFACTURER

1. Less capital tied up in slow-moving stocks.
2. More economical manufacture due to simplified inspection requirements, longer runs with fewer changes, less idle equipment, less stock to handle, etc.
3. More permanent employment as contrasted with seasonal employment.
4. Larger units of production and less special machinery.
5. More prompt delivery.
6. Less chance of error in shipment.
7. Less obsolete material and machinery.

TO THE JOBBER, WHOLESALER, AND RETAILER

1. Increased turnover.
2. Elimination of slow-moving stock.
3. Staple line, easy to buy, quick to sell.
4. Greater concentration of sales efforts on fewer items.
5. Decreased capital invested in stocks and repair parts on hand.
6. Less storage space required.
7. Decreased overhead and handling charges.

TO THE CONSUMER

1. Better values than otherwise possible.
2. Better service in delivery and repairs.
3. Better quality of product.